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Ref: 8EPR-EP March 18, 2010

Walt Baker, Director
Division of Water Quality
Utah Department of Environmental Quality
288 N 1460 W
Salt Lake City, UT 84116-3231

Subject: Proposed Revision to R317-1-1 and R317-2

Dear Mr. Baker:

This letter provides comments of the U.S. EPA Region 8 Water Quality Unit (WQU) on the proposed revision to R317-1-1 (Definitions) and R317-2 (Standards of Quality for Waters of the State). Our review addresses the revised proposal and supporting information included in the public notice of proposed rulemaking published in the February 15, 2010 issue of the Utah State Bulletin (Volume 2010, No. 4). The water quality standards proposal in the February bulletin includes the original proposal that was public noticed December 15, 2009 with revisions that were developed in response to public comments. The WQU provided comments on the December 15, 2009 proposal to the Division of Water Quality (Division) in a letter dated January 14, 2010.

Please note that the positions described in our comments, regarding both existing and proposed water quality standards, are preliminary in nature and should not be interpreted as final decisions under CWA § 303(c). EPA approval/disapproval decisions will be made after adoption of water quality standards revisions and submittal to EPA, and will consider all pertinent evidence including information submitted during the rulemaking process.

COMMENTS ON PROPOSED REVISIONS TO R317-1-1

The revised proposal includes clarifications to the definitions for "assimilative capacity" and "existing use". The proposed changes clarify how the potential to cause degradation will be determined and align the definition with the federal definition, respectively. We support adoption of the proposed revisions.

COMMENTS ON PROPOSE REVISIONS TO R317-2

Proposed Revisions to R317-2-3 Antidegradation Policy

EPA expressed concerns with the initial proposed revisions to the antidegradation policy, which identified when a Level II antidegradation review would not be required. In response to these comments, UT proposes the following revisions:

b. An Anti-degradation Level II review is not required where any of the following conditions apply:

1. Water quality will not be lowered by the proposed activity or for existing permitted facilities, water quality will not be further lowered by the proposed activity, examples include situations where:[. For example,]

(a) the proposed concentration-based effluent limit is less than or equal to the ambient concentration in the receiving water during critical conditions; or

(b) a UPDES permit is being renewed and the proposed effluent concentration [value and pollutant loading is equal to or less than the existing permitted concentrations and corresponding pollutant loading. If waste loads are not defined in an existing permit, the design capacity of the facility, of both concentrations and loads, will be used to determine whether a proposed project lowers water quality.]and loading limits are equal to or less than the concentration and loading limits in the previous permit; or

(c) a UPDES permit is being renewed and new effluent limits are to be added to the permit, but the new effluent limits are based on maintaining or improving upon effluent concentrations and loads that have been observed, including variability; or

(d) a new or renewed UPDES permit is being issued, and water quality-based effluent limits are not required for a specific pollutant because it has been determined that the discharge will not cause, have reasonable potential to cause, or contribute to an exceedance of a State water quality standard for the pollutant.

We thank UDEQ for addressing our concerns with the initial antidegradation proposal by clarifying permit situations that would not be considered a lowering of water quality. The WQU agrees that examples (a)-(c) in the revised proposal are situations that should not be considered a lowering of water quality and recommends adoption of these three provisions. However, example (d) does not clearly identify situations where water quality would be maintained, and in at least some situations could allow a lowering of water quality without an antidegradation review. Due to this uncertainty, the WQU does not recommend adoption of example (d). Further explanation of our recommendations follows.

Example (a) exempts the review of a parameter in a discharge that would result in the same concentration or dilute the existing condition in the receiving stream. In this situation, water quality would be maintained or improved; therefore it is reasonable not to require a Level II antidegradation review.

Example (b) exempts situations where a UPDES permit is being renewed and the concentration and loading limits are equal to or less than the limits in the previous permit. The new permit is not authorizing additional degradation when the current concentration and loading limits are the same or less than the previous permit; therefore, water quality will be maintained or improved. It is reasonable to conclude that an antidegradation review is not required in these situations.

Example (c) addresses situations where an existing permit is being renewed and a new permit limit is added that is equal to or less than the current effluent concentrations and load that have been observed. It may be necessary to add such new limits if new data are available that support a reasonable potential determination[1] (either because sufficient data were not previously available, or because effluent quality has worsened) or new water quality criteria have been adopted for the first time. It is reasonable not to require a Level II review in these situations if the new limits are based on maintaining or improving upon the existing effluent concentrations and loads that have been observed. It should be noted that any attempt to characterize assimilative capacity and effluent quality should consider a time variability component. Derivation of limits should include a process for excluding anomalous results that do not represent removal efficiencies under normal operations. We support this exemption because the new effluent limits would not authorize degradation of the existing ambient water quality condition. However, if the new effluent limits would authorize an increased concentration or load (compared to existing quality), then that renewal permit would authorize degradation (loss of existing assimilative capacity) and a Level II review should be triggered.

When a new or renewed UPDES permit is being issued, example (d) exempts parameters that do not have reasonable potential to cause or contribute to an excursion of a water quality standard. At this time, EPA does not have a national policy on whether this approach is appropriate; however, we are concerned that under this exemption, water quality degradation could be allowed without a Level II review. Parameters identified in the permit application process that do not have effluent limits are still considered a pollutant covered by the permit. Section 402(k) of the CWA provides that compliance with an NPDES permit shall be deemed compliance with certain provisions of the Clean Water Act including provisions related to water quality effluent limitations (CWA § 302).

It is reasonable not to require a Level II review when effluent quality for a parameter authorized in the discharge, but without effluent limits, has remained the same or decreased. However, situations may arise where the reasonable potential test is not triggered but effluent quality is getting worse. When the pollutant concentration is increasing over time, a re-issued permit could authorize an increased discharge of the pollutant compared to the previous permit even if an effluent limit is not established, which would constitute a lowering of water quality. In such cases, it may be appropriate

[1] 40 CFR Section 122.44(d)(1)(i) requires that permits include effluent limits for "all pollutants or pollutant parameters…which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."

for the permit reissuance process to include an antidegradation review in order to consider alternatives for eliminating or minimizing the discharge of the pollutant.

Given these concerns, the WQU does not recommend adoption of example (d). We recommend that this issue be addressed as part of the current water quality standards workgroup process in support of the Division's efforts to develop the *Utah Antidegradation Reviews: Implementation Guidance.* Based on the workgroup discussions, the Division can evaluate whether the issue can be addressed in the guidance document, or whether additional rule changes might be appropriate. The WQU is available to work with UT to clarify what situations without reasonable potential should be considered a lowering of water quality and subject to antidegradation review.

Proposed Revisions to R317-2-14 Numeric Criteria

Table 2-14-1 – Inorganics.

We thank the Division for removing their proposal to change the inorganic standards from total to dissolved. Until the UDEQ has supporting information that the dissolved fraction would be protective of human health, we would not support changing the applicable fraction of the parameter.

Table 2-14-1 - Site Specific Standards for Total Dissolved Solids

Consolidated Coal Co. requested a site specific TDS criterion of 3,800 mg/L for Quitchupah and Ivie creeks in their comments on the December 15, 2009 proposal. In the Division's response to comments, they support adoption of the proposed TDS criterion with the condition that sulfate is not to exceed 2,000 mg/L for the protection of livestock watering agricultural use. High dietary ingestion of sulfur may cause acute death, polioencephalomalacia (PEM), trace mineral deficiencies, and/or decreased production efficiency. Supporting evidence was provided by both Consolidated Coal and the Division to support their proposals.

The WQU commends the Division for their efforts to evaluate the existing literature on sulfur toxicity to ruminants and potential effects to aquatic life when developing their proposal. We believe the documents provided by Consolidated Coal and the Division generally provide the evidence necessary to support the combined sulfate and TDS proposal. Several studies reviewed by the Division suggest that a sulfate criterion of 2,000 µg/L could be protective of the livestock watering use depending on water consumption and food quality. However, other studies suggest more conservative sulfate concentrations are necessary to protect a livestock watering use. For example, the University of Wyoming recently produced a study that recommends a concentration of 1,800 mg/L sulfate to minimize the possibility of acute death and 1,000 mg/L sulfate to prevent a loss of performance in cattle [2].

[2] Water Quality for Wyoming Livestock and Wildlife. University of Wyoming Department of Veterinary Sciences and Department of Renewable Resources, Wyoming Game and Fish Department, and Wyoming Department of Environmental Quality. Available online at http://ces.uwyo.edu/PUBS/B1183.pdf

Additionally, as documented in the Division's supporting evidence, the National Resource Council recommends a maximum tolerated dose (MTD) of 0.50 percent sulfur for cattle fed a diet of at least 40 percent forage[3]. The MTD combined with a water consumption rate of 38 L/day was used to derive the Division's sulfate proposal of 2,000 µg/L. The Division then states that water containing 2,000 µg/L sulfate could result in a maximum sulfate dose ranging from 0.47 to 0.68 percent sulfur depending on the quantity of water ingested. This analysis indicates that the MTD of 0.50 percent sulfur could be exceeded when water consumption exceeds 38 L/day. We understand it is difficult to determine the sulfur content in diet and water consumption of cattle grazing in the Quitchupah and Ivie creeks watersheds, making it difficult to quantify a protective water intake concentration; however, the conflicting information raises the following questions:

- Is the predicted range of 0.47 to 0.68 percent sulfur a good estimate of the range of sulfate doses cattle will be ingesting when sulfate concentrations are 2,000 µg/L? Is it likely that the dietary sulfur level will exceed 0.50 percent?

- If the conditions are accurate, we question if the proposed criterion would be protective of the livestock watering use. If these conditions are not accurate, what would be a more realistic sulfur dose for cattle consuming water with 2,000 µg/L sulfate given the conditions that occur at the site?

We recommend that the Division address these questions prior to submitting the combined proposal to the Water Quality Board for adoption.

Table 2-14-2 Numeric Criteria for Aquatic Wildlife

The Division revised the impounded wetlands footnote for DO and pH proposal to include the following language:

> To ensure protection of uses, the Executive Secretary shall develop reasonable protocols and guidelines that quantify the physical, chemical, and biological integrity of these waters. These protocols and guidelines will include input from local governments, the regulated community, and the general public. The Executive Secretary will inform the Water Quality Board of any protocols or guidelines that are developed.

The WQU supports adoption of the proposed language; however, we would like to reiterate the comment in our January letter that implementation procedures are essential for determining the protectiveness of a narrative criterion. Implementation procedures should address both the assessment of the water body pursuant to CWA § 303(d) **and the development of water quality-based effluent limits** pursuant to CWA § 402. The submitted draft report *Development of an Assessment Framework For Impounded Wetlands of Great Salt Lake* (Utah DEQ, November 2009) outlines preliminary assessment procedures, but does not adequately address effluent limit considerations. Where assessment procedures are important for identifying impaired

[3] National Research Council (2005) Sulfur. Pp 372-385 in Mineral Tolerance of Animals. National Academies Press, Washington, D.C.

water bodies, permitting procedures are especially important for preventing future impairments. Although we support the proposed narrative criteria approach for pH and DO, we recommend that the Division develop permitting implementation procedures that address how the narrative criterion will be taken into consideration when reviewing existing permits and issuing new permits, in addition to finalizing the assessment procedures.

CONCLUSION

We hope these comments are helpful to the Commission, the Division, and the parties to this rulemaking. We appreciate the efforts of the Division and the parties to address issues of concern to EPA. If there are questions concerning our comments, please contact me at (303) 312-6236, or Lareina Guenzel at (303) 312-6610.

Sincerely,

Karen Hamilton, Chief
Water Quality Unit